Name Key Date

1.1-1.3 Review

Simplify

1. $-|4.2|$ → -4.2
2. $|12-16|$ → 4
3. $|3|-|-2|$ → 1
4. $0.3|-6|$ → 1.8
5. $|14-8|$ → 6
6. $|-0.01|$ → 0.01

Find the opposite and the reciprocal of each number

7. $2\frac{1}{2}$ — O: $-2\frac{1}{2}$ or $-\frac{5}{2}$ | R: $\frac{2}{5}$
8. -1.38 — O: 1.38 | R: $-\frac{138}{100} = -\frac{100}{138}$ or $-\frac{50}{69}$

In each blank, put the symbol (<,>, or =) that will make the sentence true

9. $-\sqrt{6} < \sqrt{10}$
10. $\frac{3}{2} = 1.5$
11. $4 = |-4|$
12. $-|-7| < |-7|$ → $-7 \quad 7$

Simplify by combining like terms

13. $11t + 3t - 5$ → $14t-5$
14. $-3x^2 + 5x + 16x^2$ → $13x^2+5x$
15. $4a - 5(a+1)$ → $4a-5a-5$ → $-1a-5$
16. $2(m-n^2)-6(n^2+3m)$ → $2m-2n^2-6n^2-18m$ → $-8n^2-16m$

17. The expression $6x^2$ represents the surface area of a cube with edges of length x. Find the surface area of a cube with each edge length.

a. 3 inches → $6(3)^2$ → $6 \cdot 9$ → $54u^2$

b. 1.5 meters → $6(1.5)^2$ → $13.5u^2$

18. The expression $4.95 + 0.07x$ models a household's monthly long-distance charges, where x represents the number of minutes of long-distance calls during the month. Find the monthly charges for 73 minutes.

$4.95 + 0.07(73)$

$4.95 + 5.11 = 10.06$

Evaluate each expression for the given value of the variable

19. $t^2 - (3t + 2); t = 5$

$(3(5)+2)$

$5^2 - 17$

$25 - 17 = 8$

20. $k + 2 - 4k - 1; k = -3$

$-3 + 2 - 4(-3) - 1$

$-3 + 2 + 12 - 1 = -1 + 12 - 1$

$11 - 1 = 10$

21. $-m(2m + m^2); m = -4$

$-(-4)(2(-4) + (-4)^2)$

$4(-8 + 16) = 4(8) = 32$

22. $a^2 + b^2; a = -3, b = 4$

$(-3)^2 + 4^2$

$9 + 16 = 25$

23. $6r - 3r^2 + 2r^3; r = 2$

$6(2) - 3(2)^2 + 2(2)^3$

$12 - 12 + 16 = 16$

24. $-a^2 + 3(d - 2a); a = 2, d = -3$

$-3-4$

$-(2)^2 + 3(-3 - 2(2))$

$-4 + 3(-7) = -4 + -21$

-25

Solve each formula for the indicated variable

25. $V = \frac{3}{\pi}\cdot\frac{\pi}{3}r^2h$, for h

$\frac{3V}{\pi r^2} = \frac{r^2h}{r^2}$

$h = \frac{3V}{\pi r^2}$

26. $S = L(1 - r)$, for r

$\frac{S}{L} = 1 - r$

$\frac{S}{L} - 1 = -r$

$r = -\frac{S}{L} + 1$

27. $S = lw + wh + lh$, for w

$S - lh = lw + wh$

$\frac{S - lh}{l + h} = \frac{w(l + h)}{l + h}$

$w = \frac{S - lh}{l + h}$

Solve each equation

28. $7y + 5 = 6y + 11$

$-6y \quad -5$

$y = 6$

29. $1.2(x + 5) = 1.6(2x + 5)$

$1.2x + 6 = 3.2x + 8$

$-1.2x \quad -8 \quad -1.2x \quad -8$

$-2 = 2x$

$x = -1$

30. $3(x + 1) = 2(x + 11)$

$3x + 3 = 2x + 22$

$-2x - 3 \quad -2x \quad -3$

$x = 19$

31. $t - 3\left(t + \frac{4}{3}\right) = 2t + 3$

$t - 3t - \frac{12}{3} = 2t + 3$

$t - 3t - 4 = 2t + 3$

$-2t - 4 = 2t + 3$

$-4 = 4t + 3$

$-3 \quad -3$

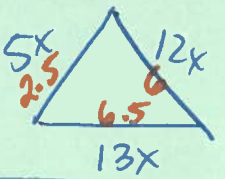
$-7 = 4t$

$\frac{-7}{4} = \frac{4t}{4}$

32. The sides of a triangle are in the ratio 5 : 12 : 13. What is the length of each side of the triangle if the perimeter of the triangle is 15 inches?

$5x+12x+13x=15$

$\frac{30x}{30}=\frac{15}{30}$ $x=\frac{1}{2}$



Side 1: $5x$
Side 2: $12x$
Side 3: $13x$

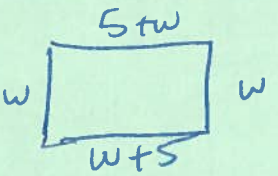
2.5, 6, 6.5

33. The length of a rectangle is 5 cm greater than its width. The perimeter is 58 cm. Find the dimensions of the rectangle.

$5+w+w+5+w+w=58$

$4w+10=58$

$\frac{4w}{4}=\frac{48}{4}$ $w=12$



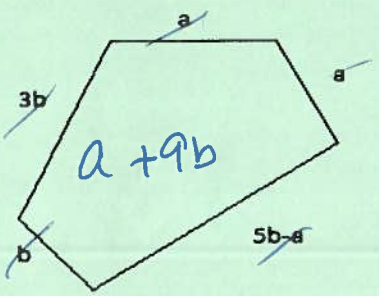
$l=5+w$
$w=$ width

width: 12 cm
length: 17 cm

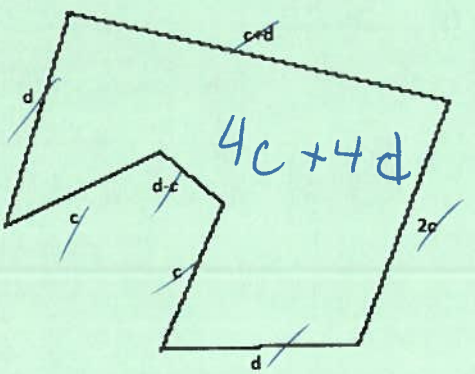
~~34~~. Two brothers are saving money to buy tickets to a concert. Their combined saving is $55. One brother has $15 more than the other. How much has each brother saved?

Find the perimeter

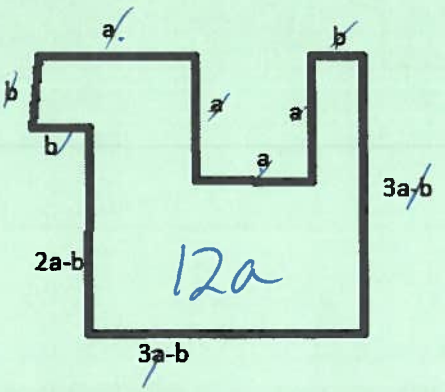
35. $a+a+5b-a+b+3b$



36. $d+c+d+2c+d+c+d+c+$



37.



$4a+3b+3a-b+3a-b+2a$

12a